

Supporting Information

Photophysical Properties of Ionic Liquid-Assisted Porphyrin Nanoaggregate -Nickel Phthalocyanine Conjugates and Singlet Oxygen Generation

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Table T1: Decay Parameters of ZnOEP nanoaggregate in water at the excitation wavelength of 375 nm

Sample	Emission (nm)	τ_1 (ns) (a_1)	τ_2 (ns) (a_2)	τ_3 (ns) (a_3)	$\langle\tau\rangle$ (ns)
ZnOEP nanoaggregate	597	0.10 (0.79)	0.63 (0.21)	---	0.21
	637	0.30 (0.60)	0.74 (0.40)	---	0.48
ZnOEP nanoaggregate + 4 μ M Ni-PC	597	0.09 (0.78)	0.62 (0.22)	---	0.20
	637	0.28 (0.62)	0.73 (0.38)	---	0.45
ZnOEP nanoaggregate + 12 μ M Ni-PC	597	0.05 (0.85)	0.49 (0.14)	1.49 (~0)	0.11
	637	0.10 (0.55)	0.53 (0.44)	1.87 (0.01)	0.31
ZnOEP nanoaggregate + 20 μ M Ni-PC	597	0.04 (0.87)	0.47 (0.13)	1.81 (~0)	0.10
	637	0.09 (0.58)	0.52 (0.41)	2.30 (0.01)	0.29

Table T2: Decay Parameters of CTAB-assisted ZnOEP nanoaggregate in water at the excitation wavelength of 375 nm

Sample	Emission (nm)	τ_1 (ns) (a ₁)	τ_2 (ns) (a ₂)	τ_3 (ns) (a ₃)	$\langle\tau\rangle$ (ns)
ZnOEP nanoaggregate	597	0.09 (0.71)	0.58 (0.25)	2.41 (0.04)	0.30
	637	0.34 (0.62)	1.00 (0.31)	3.85 (0.07)	0.79
ZnOEP nanoaggregate + 4 μ M Ni-PC	597	0.08 (0.76)	0.65 (0.21)	2.73 (0.03)	0.28
	637	0.30 (0.57)	0.95 (0.36)	3.85 (0.07)	0.78
ZnOEP nanoaggregate + 12 μ M Ni-PC	597	0.08 (0.76)	0.61 (0.21)	2.54 (0.03)	0.26
	637	0.23 (0.51)	0.82 (0.43)	3.64 (0.06)	0.69
ZnOEP nanoaggregate + 20 μ M Ni-PC	597	0.07 (0.78)	0.64 (0.19)	2.68 (0.03)	0.26
	637	0.16 (0.49)	0.76 (0.45)	3.59 (0.06)	0.65

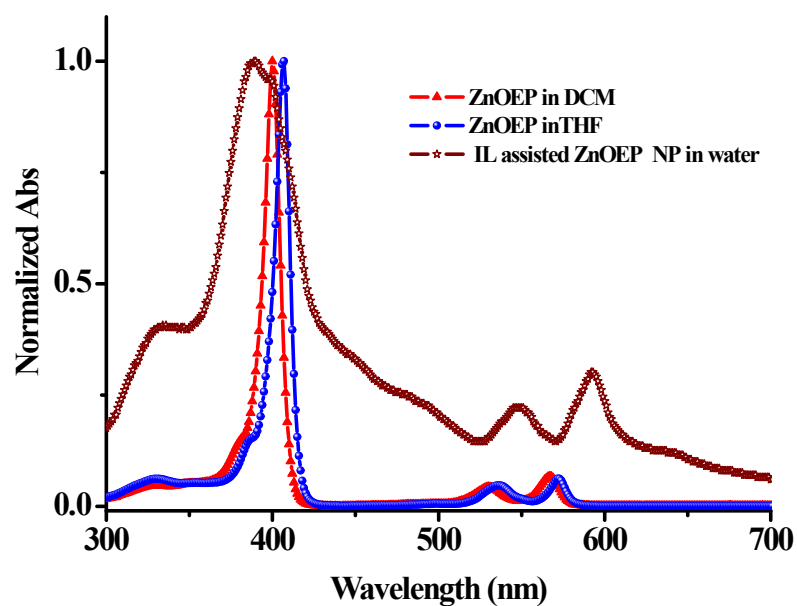


Figure S1: Absorption spectra of ZnOEP in different solvents

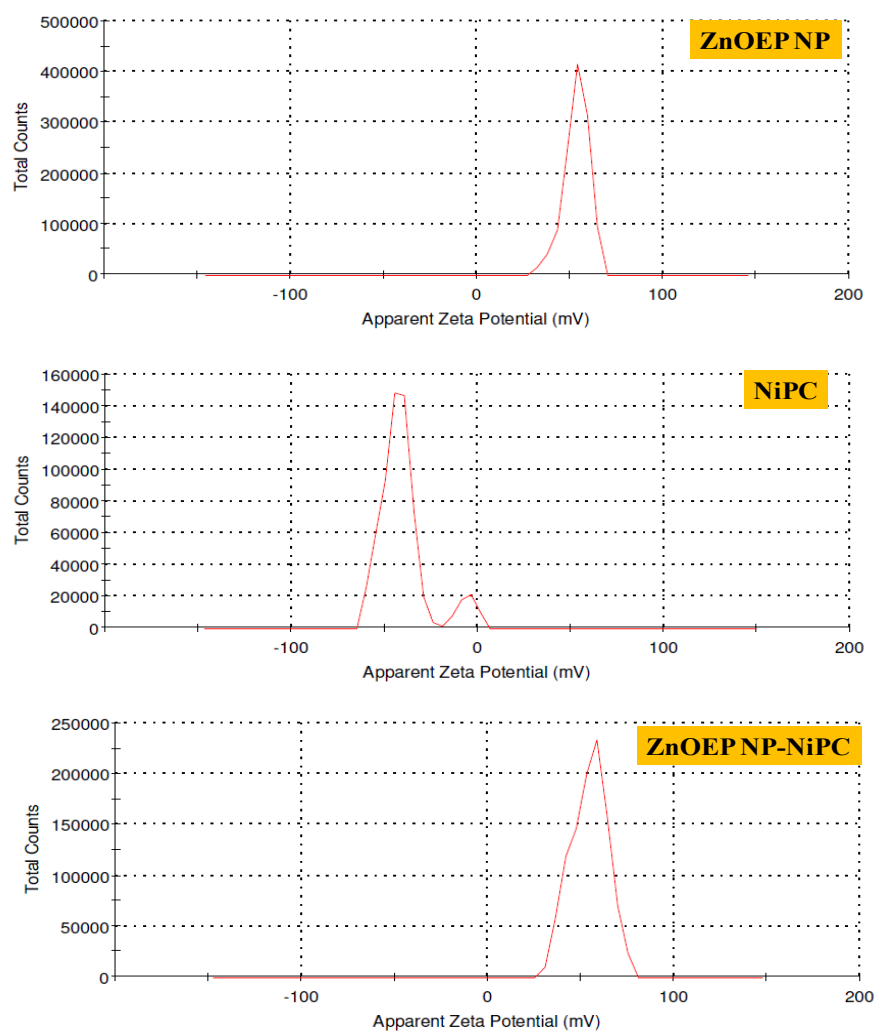


Figure S2: Zeta potential curves of different systems.

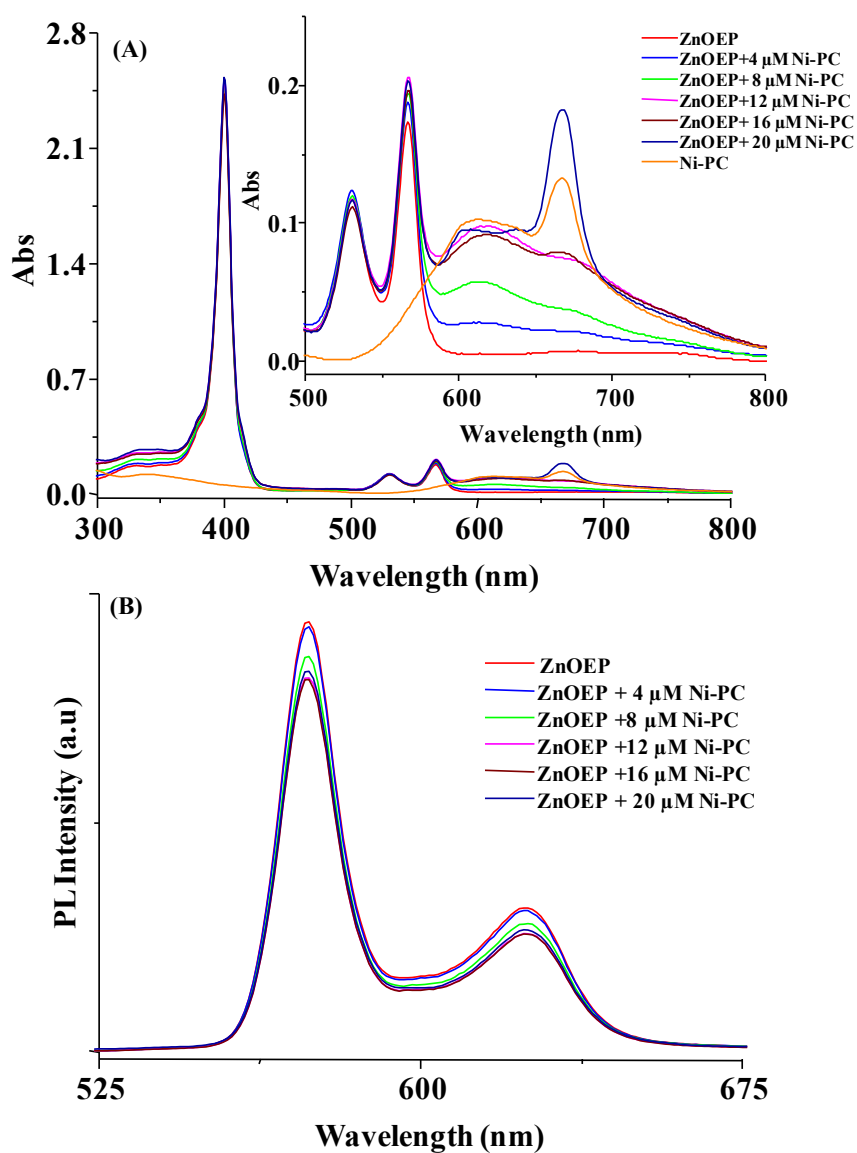


Figure S3: (A) UV-vis and (B) Photoluminescence spectra of ZnOEP in IL containing DCM solution in presence of different concentrations of Ni-PC.

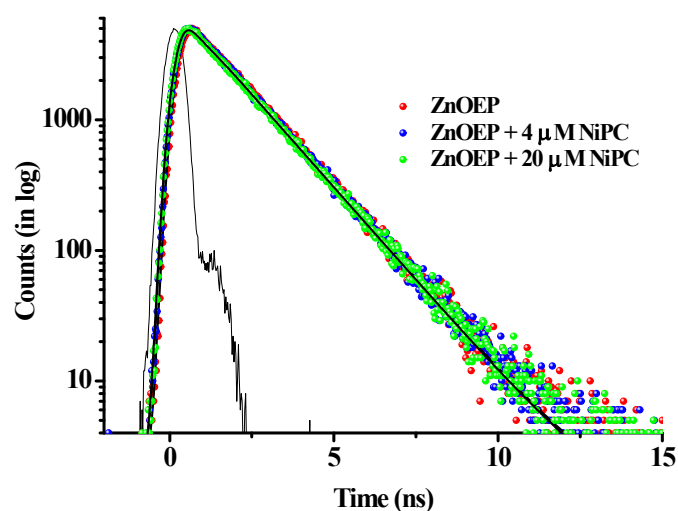


Figure S4: Photoluminescence decay curves of ZnOEP in IL containing DCM solution in presence of different concentrations of NiPC at the emission wavelength of 597 nm.

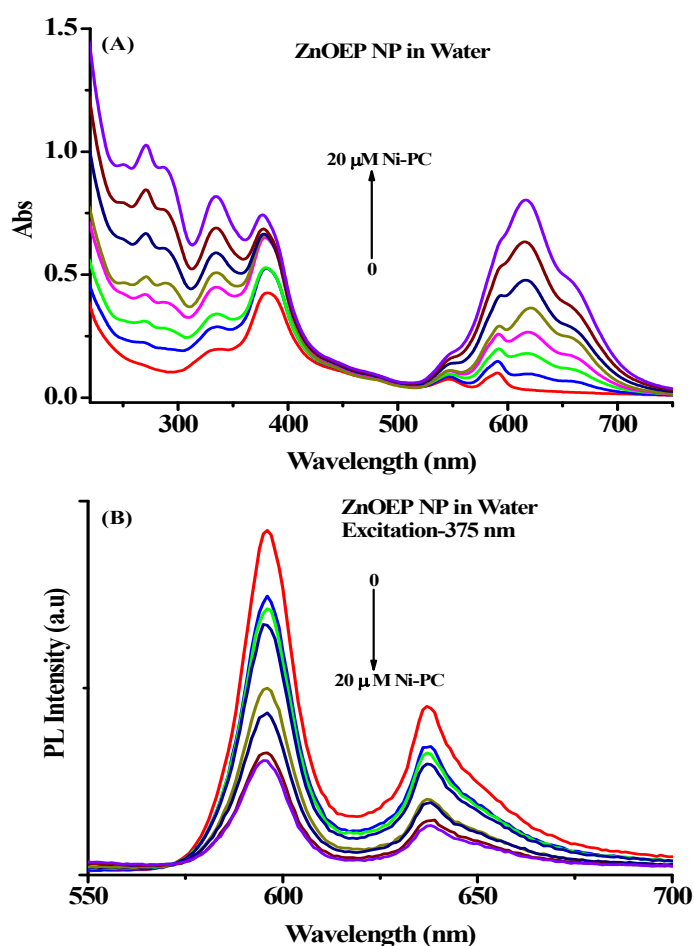


Figure S5: (A) UV-vis and (B) Photoluminescence spectra of ZnOEP nanoaggregate (prepared by re-precipitation method) in presence of different concentrations of NiPC. The concentrations of NiPC are 0, 2, 4, 6, 8, 12, 16 and 20 μM .

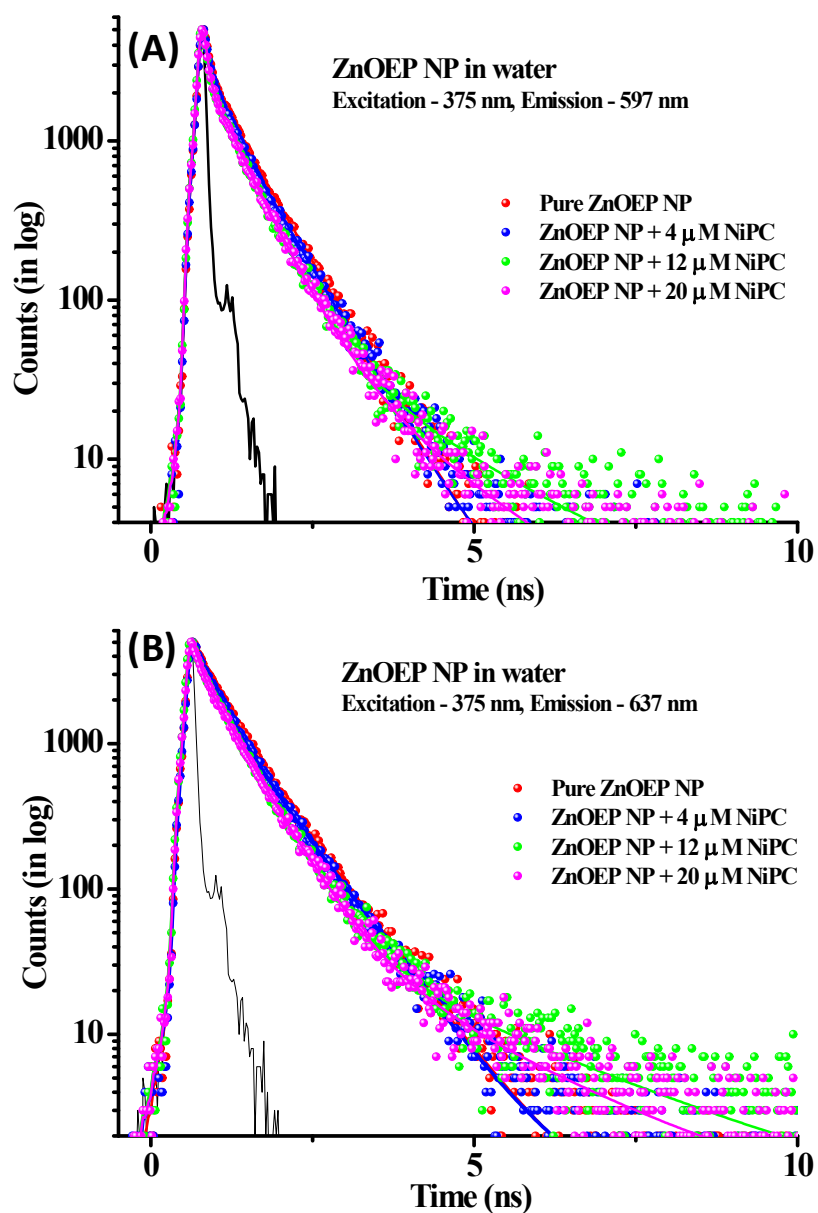


Figure S6: Photoluminescence decay curves of ZnOEP nanoaggregate (prepared by re-precipitation method) at the emission wavelength of (A) 597 nm and (B) 637 nm, in presence of different concentrations of NiPC (a) 0 μM , (b) 4 μM , (c) 12 μM and (d) 20 μM NiPC (Excitation wavelength at 375 nm).

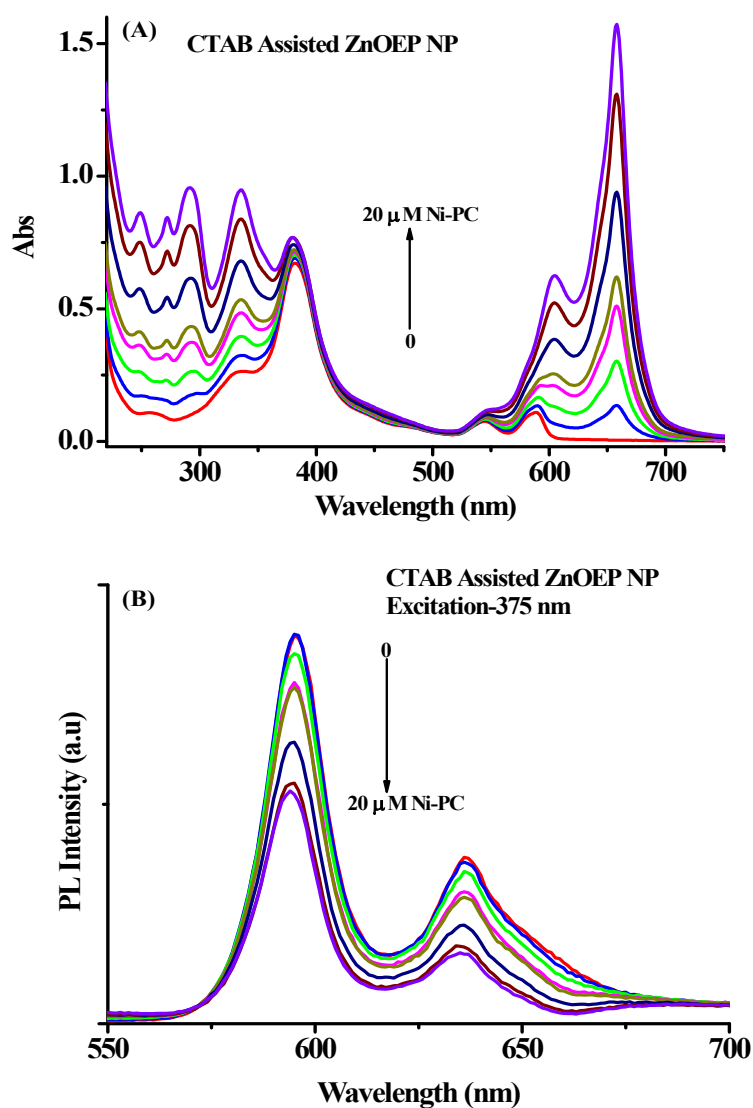


Figure S7: (A) UV-vis and (B) photoluminescence spectra of ZnOEP nanoaggregate (CTAB-assisted) in presence of different concentrations of NiPC. The concentrations of NiPC are 0, 2, 4, 6, 8, 12, 16 and 20 μM .

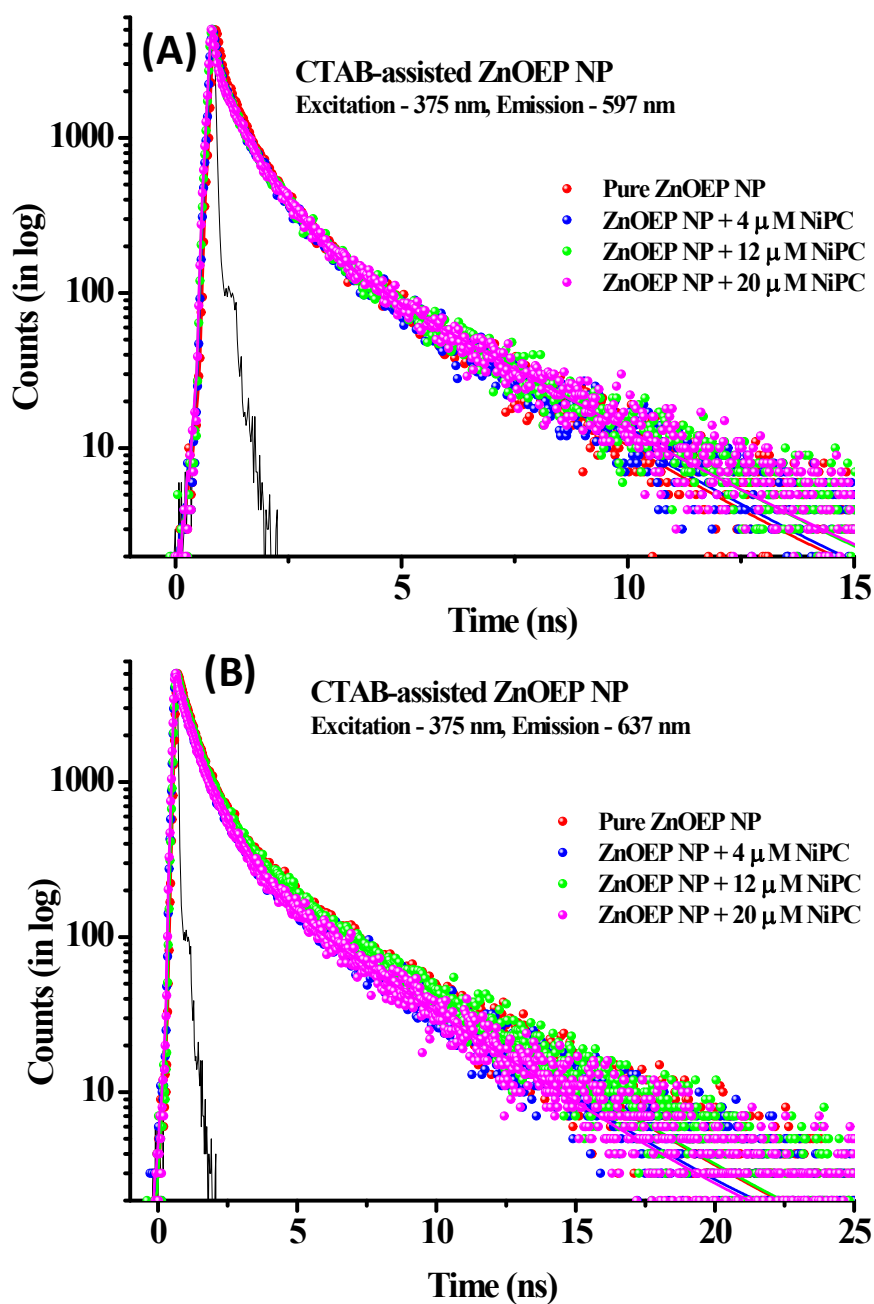


Figure S8: Photoluminescence decay curves of ZnOEP nanoaggregate (CTAB-assisted) at the emission wavelength of (A) 597 nm and (B) 637 nm, in presence of different concentrations of NiPC (a) 0 μM , (b) 4 μM , (c) 12 μM and (d) 20 μM NiPC (Excitation wavelength at 375 nm).

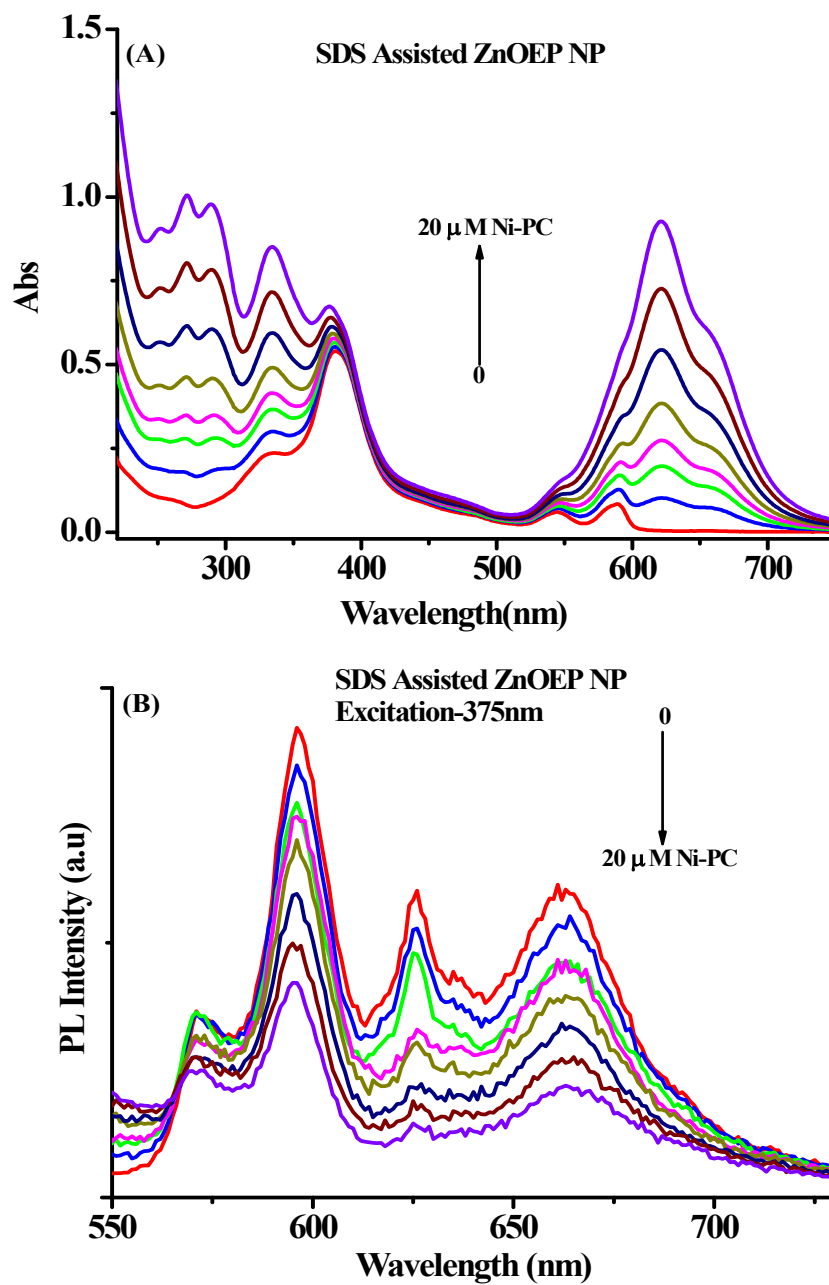


Figure S9: (A) UV-vis and (B) photoluminescence spectra of ZnOEP nanoaggregate (SDS-assisted) in presence of different concentrations of NiPC. The concentrations of NiPC are 0, 2, 4, 6, 8, 12, 16 and 20 μM .